United States Environmental Protection Agency | Office of Prevention, Pesticides And Toxic Substances (7508W) | EPA-738-F-92-011 September 1992

R.E.D. FACTS

Nosema locustae

Pesticide Reregistration

All pesticides sold or used in the United States must be registered by EPA, based on scientific studies showing that they can be used without posing unreasonable risks to people or the environment. Because of advances in scientific knowledge, the law requires that pesticides which were first registered years ago be reregistered to ensure that they meet today's more stringent standards.

In evaluating pesticides for reregistration, EPA obtains and reviews a complete set of studies from pesticide producers, describing the human health and environmental effects of each pesticide. The Agency imposes any regulatory controls that are needed to effectively manage each pesticide's risks. EPA then reregisters pesticides that can be used without posing undue hazards to human health or the environment.

When a pesticide is eligible for reregistration, EPA announces this and explains why in a Reregistration Eligibility Document, or RED. This fact sheet summarizes the information in the RED for *Nosema locustae*, also called *N. locustae*.

Use Profile

N. locustae is a microbial insecticide used to control grasshoppers and crickets in crop fields, lawns and turf, grass way drains, fencerows and hedgerows. It is made from the spores of the protozoan, *N. locustae* (Canning), which is infectious to certain grasshoppers and crickets. *N. locustae* must be eaten by the target insect to be effective.

Regulatory History

The first pesticide product containing *N. locustae* as an active ingredient was registered by EPA on May 9, 1980. Currently, six registered pesticide products contain *N. locustae*. Although it is registered for use on crop fields, *N. locustae* is exempted from the requirement of a tolerance (or maximum limit) for residues remaining in or on all raw agricultural commodities. (Please see 40 CFR 180.1041.)

Human Health Assessment

Toxicity

N. locustae and other, similar microorganisms do not appear to be hazardous to humans or other mammals. The toxicology studies considered in support of *N. locustae*'s reregistration included acute toxicity studies, a 90-day feeding study in rats, and an abdominal cavity lining injection study in mice. No adverse effects were noted in any of these

studies. *N. locustae* has been placed in Toxicity Category IV (indicating the lowest level of toxicity) for all acute effects. *N. locustae* spores seem to be inactivated by passage through the test animal since persistence does not occur in rats fed the microorganism for 90 days.

Dietary Exposure

Although people possibly could be exposed to residues of N. locustae through the diet, the amounts involved would likely be very small and would pose no known health risks. *N. locustae* is applied as a bait to cole crops (such as cabbage and rape) and in orchards. However, most if not all of the bait is on the soil surface and not on the crop itself, prior to harvest. Further, *N. locustae* is rapidly inactivated by light and warmth (temperatures over 35 degrees C.), and poses no known hazards to humans. For these reasons, *N. locustae* has been exempted from all tolerance requirements, as discussed earlier.

Occupational and Residential Exposure

The technical grade, liquid concentrate *N. locustae* is formulated onto a wheat bran bait. This bait is applied by ground equipment to cole crops, orchards, forests, lawns and gardens for consumption by the target pests, susceptible grasshoppers and crickets. During ground boom applications to row crops, people mixing, loading and applying *N. locustae* bait may be exposed to significant amounts of the microorganism on their skin and through inhalation. However, since *N. locustae* poses no human toxicity concerns, exposure studies are not required at this time.

Human Risk Assessment

The potential risks to humans and other mammals from dietary and nondietary exposure to *N. locustae* are considered negligible. Existing toxicology studies showed no detectable dose-related effects at any level, as well as the inability of *N. locustae* to replicate in or accumulate in the tissues of warm blooded animals. EPA requires only that any allergic reactions following exposure to *N. locustae* be reported by the registrants.

Environmental Assessment

Environmental Fate

There are no concerns with the ecological effects of this naturally-occurring microorganism, so no environmental fate studies are required.

Ecological Effects

EPA received and reviewed a sufficient complement of studies to perform an ecological hazard assessment of *N. locustae*. These studies show that *N. locustae* should not have an adverse effect on avian species, aquatic invertebrates or honeybees, on an acute basis. It also is not acutely toxic to and does not cause diseases in freshwater trout. Although some of these studies were not extended over sufficient time to evaluate fully *N. locustae*'s ability to cause infection or disease, the long use history of this microorganism without reported adverse effects has allowed EPA to waive

further data requirements. Also, no beneficial non-target insect studies were submitted. However, such insects would not likely be exposed to *N. locustae* at greater than naturally-occurring levels; thus, the Agency also is waiving these studies. EPA does not expect *N. locustae* to cause any adverse effects in non-target species.

Environmental and Ecological Risk Assessment

N. locustae has been tested and studied for 20 years, and has been used in the field since 1980. No adverse effects have been reported during the many years of experience with and environmental release of *N. locustae*. Considering this use history along with the studies reviewed, EPA can foresee no significant adverse effects on nontarget species or the environment from the registered uses of *N. locustae*.

Additional Data Required

EPA has waived all generic data requirements for *N. locustae*. Product-specific acute toxicity studies are required to determine appropriate labeling for reregistration.

Product Labeling Changes Required

The labels of all registered *N. locustae* products must comply with EPA's current pesticide labeling requirements.

Regulatory Conclusion

- All registered pesticide products containing the active ingredient *N. locustae* are not likely to cause unreasonable adverse effects in people or the environment, and are eligible for reregistration. These products will be reregistered once the required product-specific data and revised labeling are received and accepted by EPA.
- Registered products containing *N. locustae* as well as other active ingredients will be reregistered once the other active ingredients also are determined to be eligible for reregistration.

For More Information

EPA is requesting public comments on the Reregistration Eligibility Document (RED) for *N. locustae* during a 60-day time period, as announced in a Notice of Availability published in the Federal Register. To obtain a copy of the RED or to submit written comments, please contact the Public Response and Program Resources Branch, Field Operations Division (7506C), Office of Pesticide Programs (OPP), US EPA, Washington, DC 20460, telephone 703-305-5805.

In the future, the *N. locustae* RED will be available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, telephone 703-487-4650.

For more information about *N. locustae* or about EPA's pesticide reregistration program, please contact the Special Review and Reregistration Division (7508W), OPP, US EPA, Washington, DC 20460, telephone 703-308-8000. For information about reregistration of individual *N. locustae*

products, please contact PM Team 18, Registration Division (7505C), OPP, US EPA, Washington, DC 20460, telephone 703-305-7690.

For information about the health effects of pesticides, or for assistance in recognizing and managing pesticide poisoning symptoms, please contact the National Pesticides Telecommunications Network (NPTN). Call toll-free 1-800-858-7378, 24 hours a day, seven days a week, or fax your inquiry to 806-743-3094.